AMENDMENTS TO THE CLAIMS

Please amend the claims as follows:

1–42. (Cancelled).

43. (Previously Presented) An apparatus comprising:

an analog photocell;

a sample and hold amplifier, a first input to the sample and hold amplifier being an output from the analog photocell, a second input to the sample and hold amplifier being a reference voltage, the sample and hold amplifier producing an output that is a scaled version of the output of the analog photocell, the scaling of the output being controlled by the reference voltage; and

an analog to digital converter, the analog to digital converter converting the output of the sample and hold amplifier to a digital value, the scaled version of the output of the analog photocell being chosen to match a dynamic range of the analog photocell with a dynamic range of the analog to digital converter and being based, at least in part, on ambient light conditions.

44. (Previously Presented) The apparatus of claim 43, wherein the analog to digital converter comprises:

a voltage controlled oscillator, an input of the voltage controller oscillator being a output from the sample and hold amplifier; and

a counter, the counter being driven by an output of the voltage controlled oscillator.

45. (Previously Presented) The apparatus of claim 44, further comprising a memory, the memory storing an output of the counter.

46. (Previously Presented) The apparatus of claim 45, wherein the counter is reset after a certain period of time.

47. (Previously Presented) The apparatus of claim 46, wherein the period of time is an integration time for the analog photocell.

48. (Previously Presented) A method comprising:

inputting a charge of a analog photocell to a sample and hold amplifier;

inputting a reference voltage to the sample and hold amplifier;

modifying the scale of the analog photocell charge using the sample and hold amplifier, the modification of the scale of the analog photocell charge being controlled by the reference voltage; and

converting an output of the sample and hold amplifier to a digital value, the scale of the analog photocell charge being modified by the sample and hold amplifier to match a dynamic range of the analog photocell to a dynamic range appropriate for converting the output of the sample and hold amplifier to a digital value, and the scale of the analog photocell charge being based, at least in part, on ambient light conditions.

49. (Previously Presented) The method of claim 48, wherein converting the output of the sample and hold amplifier to a digital value comprises:

applying an output of the sample and hold amplifier to a voltage controlled oscillator; and

driving a counter using the output of the voltage controlled oscillator.

50. (Previously Presented) The method of claim 49, wherein a count from the counter is proportional to the intensity of light on the analog photocell during a previous integration time period for the photocell.

51. (Previously Presented) The method of claim 50, further comprising storing a count from the counter in a register.

52. (Previously Presented) The method of claim 51, further comprising resetting the counter after the passage of the integration time period for the photocell.

53. (Previously Presented) An digital photocell comprising:

an analog photocell;

a sample and hold amplifier, a first input of the sample and hold amplifier being an output of the analog photocell and a second input of the sample and hold amplifier being a reference voltage;

a voltage controlled oscillator, an input to the voltage controlled oscillator being an output of the sample and hold amplifier, the sample and hold amplifier to scale the input to the voltage controlled oscillator, the scaling of the input to the voltage controlled oscillator being controlled by the reference voltage, the reference voltage to be set to match the scale of the input to a dynamic range of the voltage controlled oscillator input to the voltage controlled oscillator based at least in part on ambient light levels;

a counter, a speed at which the counter operates being controlled by an output of the voltage controlled oscillator; and

a register, the register storing an output of the counter.

54. (Previously Presented) The digital photocell of claim 53, wherein the counter counts for a specified time period and wherein the counter is reset at the end of the time period.

55. (Previously Presented) The digital photocell of claim 54, wherein the time period is an integration time period for the analog photocell.

56. (Currently amended) The digital photocell of claim 55, wherein the output stored in the register is a digital value that reflects an intensity of light incident on the analog photocell during the previous integration time period.

57. (Previously Presented) The digital photocell of claim 56, wherein the digital photocell is included in a pixel array.

58. (Previously Presented) A method comprising:

applying an output of a analog photocell as a first input to a sample and hold amplifier;

applying a reference voltage as a second input to the sample and hold amplifier;

modifying the scale of the output of the analog photocell using the sample and hold amplifier, the modification of the scale of the output of the analog photocell being controlled by the reference voltage, the scale of the analog photocell charge being modified to match a dynamic range of the analog photocell to a dynamic range appropriate for converting the output of the

sample and hold amplifier, the scale of the analog photocell charge being based at least in part on ambient light conditions; and

applying the output of the sample and hold amplifier to a voltage controlled oscillator;

driving a counter with the output of the voltage controlled oscillator;

saving a count from the counter; and

resetting the counter at the conclusion of a time period.

59. (Previously Presented) The method of claim 58, wherein the time period is an integration period of the analog photocell.

60. (Previously Presented) The method of claim 59, wherein the count from the counter is saved in a register.

61. (Previously Presented) The method of claim 60, wherein the count from the counter is proportional to intensity of light incident on the analog photocell.